(or other local telephone companies) to recover all of its costs.[96] With regard to pure TSLRIC, by excluding joint and common costs, the proposal effectively would take the infrastructure supported by such costs and appropriate it for use by the public and GTE's competitors without compensation.

In sum, the Commission's proposals would require that permanent physical access be granted to GTE's infrastructure without just compensation. In accord with settled principles, such a usurpation of physical property without just compensation is a *per se* violation of the Takings Clause.[97]

2. The Challenged Proposals Result In Confiscatory Price Levels And Thus Violate The Takings Clause.

The challenged proposals would violate the Takings Clause even if they did not involve physical use of GTE's property. The Takings Clause requires that, if government regulation forces a party to shoulder disproportionate burdens and costs in the name of the public interest, that party is entitled to just compensation. *See Dolan*, 114 S. Ct. at 2316; *Yee v. Escondido*, 503 U.S. 519, 522-23 (1992). This question mandates a contextual inquiry into (1) the economic impact of the regulation on the claimant, (2) the extent to which the regulation has interfered with investment-backed

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[96] As discussed below, as a result of the changes produced by the 1996 Act, the pertinent frame of reference for measuring the adequacy of compensation is the interconnection activity itself, not an aggregate of all local telephone company activities.

[97] Moreover, to the extent that GTE or other local telephone companies must dedicate particular property entirely to the use of others (such as telephone lines to particular residences), the second *per se* takings rule -- an owner's deprivation of all economically beneficial uses for particular property, *Lucas*, 505 U.S. at 1015 -- is triggered and likewise requires just compensation.

expectations, and (3) the character of the government action, *Connolly v. Pension BenefitsGuar. Corp*, 475 U.S. 211, 225 (1986); *Penn Central Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978). The partly private, partly public character of local utilities creates its own particularized set of issues in takings analysis. "The guiding principle has been that the Constitution protects utilities from being limited to a charge for their property serving the public which is *so unjust as to be confiscatory.*" *Duquesne Power*, 488 U.S. at 307 (emphasis added); *see also Federal Power Commission v. Natural Gas Pipeline Co.*, 315 U.S. 575, 585 (1942) (the lowest reasonable rate is one which is not confiscatory in the constitutional sense).

In the traditional analysis, government largely defined the rate and risks because utilities were public monopolies that provided an essential service and enjoyed relative immunity from market risks. This classical, regulated monopoly model represents the so-called regulatory compact, under which "[t]he utilities incur fewer risks, but are limited to a standard rate of return. . . " *Duquesne Power*, 488 U.S. at 309.

The "regulatory compact" for local telephone companies, however, has now been fundamentally altered by the 1996 Act and the competitive regime that it establishes. To the extent that it was permissible under a prior monopoly-based regime to force a telephone company to incur a loss on one part of its business in return for compensatory profitability for another part of its business, such an approach is no longer tenable in the competition-based world established by the 1996 Act. More than 75 years ago, the Supreme Court squarely resolved this takings issue, holding that it was impermissible, in a competitive context, to aggregate loss-inducing business lines with profitable, competitive ones for purposes of the takings analysis. In attempting to

deny a company permission to abandon a railroad line operated at a loss, a Railroad Commission had argued that, because the company made a profit on its related timber business, the test of the company's property rights "was the net result of the whole enterprise -- the entire business of the corporation." *Brooks-Scanlon Co. v. Railroad Commissioner*, 251 U.S. 396, 399 (1920). In words with great import for the challenged below-cost proposals at issue in this proceeding, Justice Oliver Wendell Holmes firmly rejected this "entire business" theory:

> A carrier cannot be compelled to carry on even a branch of business at a loss, much less the whole business of carriage . . . . The plaintiff may be making money from its sawmill and lumber business but it no more can be compelled to spend that than it can be compelled to spend any other money to maintain a railroad for the benefit of others who do not care to pay for it.

Id. See also, e.g., Chicago, Milwaukee & St. Paul Railway Co. v. Public Utilities Commission, 274 U.S. 344, 351 (1927) (state has no power to require intrastate hauling of logs at a loss, even if regulated entity receives adequate revenues from intrastate log hauling and interstate lumber businesses together); *Calfarm Ins. Co. v. Deukmejian*, 771 P.2d 1247 (Cal. 1989) (striking down law mandating insurance rate rollback because the regulation relied on the financial position of the company as a whole, including unregulated lines of business).

It follows that, in this case, the takings analysis must likewise examine the costs and benefits imposed on interconnection arrangements by the newly defined regulatory scheme on their own terms, without reference to other sources of LEC revenues. *Other* business lines, which are now competitive, are no longer part of a single, aggregated public franchise, and cannot be considered in evaluating the confiscatory character of possible interconnection fees. Thus, the legitimacy of the FCC's proposals for pure

TSLRIC and imputation must be evaluated in terms of whether they provide a fair return for the pertinent interconnection service -- and they plainly do not.

Indeed, the Supreme Court has emphasized the special dangers of shifting costing and pricing methodologies in evaluating whether permissible rates are "confiscatory." In *Duquesne*, 488 U.S. at 315, the Court observed that the government's decision to switch back and forth between methodologies to the detriment of the regulated party would raise serious takings questions. The challenged proposals raise precisely this problem. By locking regulated utilities into below-cost rates designed and implemented under the pre-1996 Act monopolistic regime, yet denying local telephone companies the corresponding guaranteed above-cost rates of that regime, the FCC switches back and forth between methodologies and imposes on regulated entities the double burdens of competition and below cost services.[98]

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[98] Even if the FCC is not convinced that TSLRIC and imputation ultimately would be adjudicated to be takings, prudence counsels against their adoption. It is well-settled that, whenever fairly possible, difficult constitutional issues should be avoided. *Ashwander v. Tennessee Valley Authority*, 297 U.S. 288, 347 (1936) (Brandeis, J., concurring). This principle is applicable not only to judicial adjudication, but also to agency decision making. It is corrosive and disruptive to push agency decisions to the frontiers of constitutional limits. Because forced below-cost recoveries reach such boundaries, the FCC should adopt pricing guidelines that reject them. Moreover, as a practical matter, the challenged proposals undoubtedly would lead to extensive constitutional litigation regarding the takings questions. The competitive regime established by the 1996 Act promises a wide range of public benefits. These important policy initiatives should not be jeopardized by constitutionally questionable restrictions on rates. By permitting rates to be based on real costs, the FCC can achieve the goals of the 1996 Act without risking lengthy legal battles over takings violations.

E. The FCC Should Encourage a Transition to Rational Pricing of Both Interstate and Intrastate Telecommunications Services.

As the *NPRM* recognizes, the resale and unbundling requirements of the 1996 Act create a need for a prompt transition to rational pricing of both interstate and intrastate telecommunications services. (¶¶ 187, 188). Historically, rates for similar functions were priced differently based on the identity of the customer (*e.g.*, IXC, CMRS provider, residential customer, business customer) in order to achieve important public policy objectives. However, in a regulatory environment that compels unbundling and resale, discrimination based on the identity of the customer is generally untenable because there is no way to enforce such restrictions or prevent arbitrage.

Accordingly, state and federal regulators must rationalize pricing structures for all users of the ILEC's network The new structure should assure that the policy objectives of affordable local rates continue to be achieved, that users of ILEC and CLEC networks respond to appropriate pricing signals, and that ILECs will be able to recover the full costs of the services they provide. The end goal of such rationalization must be pricing that does not discriminate based on the identity of the access customer,[99] with all subsidies explicitly identified and recovered on a competitively neutral basis. To this end, the FCC must eliminate hidden subsidies by pursuing access reform promptly,[100] in

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[99] Distinctions between co-carrier (access) and end user customers may continue to be both tenable and necessary, since reciprocal compensation should apply only between carriers.

[100] The most egregious examples of such subsidies are the over-allocation of costs to the interstate jurisdiction and the recovery of non-traffic sensitive costs through a traffic-sensitive carrier common line charge.

a cohesive and comprehensive manner, preferably in conjunction with universal service reform.[101]

These reform efforts also must give ILECs pricing flexibility. The current system of rate micro-management, particularly for switched access, deprives ILECs of the tools they need to compete. In addition, inefficient pricing spurs inefficient entry. This, in turn, causes ILECs to lose market share -- even when they are the lowest cost providers. Access revenues lost to fair competition are part of the new competitive environment. By contrast, the loss of access revenues to artificial competition jeopardizes universal service.

Reform at the state level (rate rebalancing) is equally essential. Existing state rate structures contain sweeping subsidies, including average rates over extremely large geographic areas and uneconomically high rates for business and discretionary services. These hidden subsidies are untenable in a competitive environment, but are today mandated by regulatory policies designed to assure affordable residential telephone service.

GTE has repeatedly urged the FCC and Joint Board to adopt a new model for universal service that will replace today's hidden subsidies with explicit support. It has proposed a pro-competitive plan that includes a revenue-neutral rate rebalancing for interstate and intrastate services. Under GTE's proposal, the ILEC would propose a package of rate changes to the appropriate regulatory agency. Those changes would

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[101] The FCC has recognized the need for access reform for several years. *See* Federal Perspectives on Access Charge Reform (FCC Access Reform Task Force, April 30, 1993).

be designed to restructure prices for all services to more closely reflect economic costs, thereby sending correct entry signals to prospective entrants while removing hidden subsidies.[102] In considering universal service reform, the Joint Board should assess whether the refusal of a state to permit rate rebalancing would constitute a barrier to competition in violation of § 253 of the 1996 Act.

V. SECTIONS 251 AND 252 OF THE 1996 ACT DO NOT APPLY TO INTERCONNECTION BETWEEN LOCAL EXCHANGE CARRIERS AND INTEREXCHANGE CARRIERS.[103]

A. The Plain Language of § 251 Makes Clear That This Section Does Not Apply to LEC-IXC Interconnection.

The *NPRM* recognizes that interexchange service qualifies as neither "telephone exchange service" nor "exchange access" (¶¶ 160-61).[104] Based on this legal analysis, the FCC tentatively and correctly concludes that "the obligation to provide interconnection pursuant to § 251(c)(2) does not apply to telecommunications carriers requesting such interconnection for the purpose of originating or terminating interexchange traffic" (*id.*). The FCC further observes that this tentative conclusion is consistent with § 251(i), which explicitly continues the FCC's § 201 authority to regulate the terms and conditions of LEC-IXC interconnection (*id.*). The FCC errs, however, in

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[102] *See* GTE Comments, CC Docket No. 96-45, filed April 12, 1996, at 14-16.

[103] This section of GTE's Comments responds to Part II.B.2.e.(1) of the *NPRM*.

[104] With respect to CMRS interconnection (¶¶ 166-169), GTE incorporates by reference its comments in CC Docket No. 95-185 and WT Docket No. 96-6.

tentatively concluding that carriers may request unbundled elements for purposes of originating and terminating interexchange toll traffic.[105]

The § 251 interconnection process does not extend to IXCs in their capacity as IXCs. Section 251 directs ILECs to provide interconnection to any requesting telecommunications carrier at a technically feasible point, "for the transmission and routing of telephone exchange access service and exchange access."[106] "Exchange access" is defined as "the *offering* of access to telephone exchange services or facilities for the purposes of the origination or termination of telephone toll services."[107]

IXCs, in their capacity as IXCs, do not *offer* exchange access -- they are customers of exchange access. Put another way, when an ILEC provides interexchange access services to an IXC, the IXC is *not* connecting to the local exchange network to transmit or route its own local exchange service or exchange access service. Rather, it is providing toll service. Thus, the plain terms of § 251 make clear that the interconnection right does not encompass IXCs in their capacity as IXCs.

This conclusion is confirmed by § 251(g), which states that LECs "shall provide exchange access . . . and exchange services for such access to interexchange carriers . . . in accordance with the same equal access and nondiscriminatory interconnection restrictions (*including receipt of compensation*)" that applied prior to

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[105] Nonetheless, the FCC acknowledges that "allowing interexchange carriers to circumvent Part 69 access charges" through purchasing unbundled network elements may be inconsistent with other provisions in § 251 (¶¶ 163-165).

[106] § 251(c)(2)(A) (emphasis added).

[107] § 3(a)(40) (emphasis added).

enactment "under any court order, consent decree, or *regulation, order or policy of the FCC.*"[108] The highlighted language preserves the FCC's access charge regime, which is embodied in Part 69 of the Rules and in FCC orders regarding the "receipt of compensation." Moreover, § 251(g) recognizes that the FCC has discretion to address access charges through new regulations that "explicitly supersede[]" existing compensation arrangements. It does not, however, require such a review.

Any reading of § 251 that does not give meaning to § 251(g) must be rejected as inconsistent with the principle of statutory interpretation that courts "are to construe statutes, where possible, so that no provision is rendered inoperative or superfluous, void or insignificant."[109] Such a reading would also contradict the rule that, "where a statute admits a reasonable construction which gives effect to all of its provisions," a court will not "adopt a strained reading which renders one part a mere redundancy."[110] Here, allowing IXCs to interconnect with LECs under § 251, thereby avoiding the payment of access charges, would impermissiblly render § 251(g) void.

B. The Legislative History Confirms That Congress Did Not Intend To Revise The FCC's Access Charge Regime By Enacting Sections 251 And 252.

The legislative history confirms that §§ 251 and 252 were not intended to override the FCC's access charge regime. In describing § 251 of S.652, on which § 251 of the 1996 Act is based, the Conference Committee explained that:

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[108] § 251(g) (emphasis added).

[109] *Mail Order Ass'n of America v. United States Postal Service*, 986 F.2d 509, 515 (D.C. Cir. 1993) (citations omitted).

[110] *Jarecki v. G.D. Searle and Co.*, 367 U.S. 303, 307-08 (1961).

> The obligation and procedures prescribed in this section do not apply to interconnection arrangements between local exchange carriers and telecommunications carriers under § 201 of the Communications Act for the purpose of providing interexchange service, *and nothing in this section is intended to affect the FCC's access charge rules.*[111]

In addition, the Report of the Senate Committee on Commerce, Science, and Technology on S.652 states that "nothing in § 251 is intended to change or modify the FCC's rules at 47 CFR 69 et seq. regarding the charges that an interexchange carrier pays to local exchange carriers for access to the local exchange carrier's network."[112] These uncontradicted statements provide powerful evidence that, in enacting § 251, Congress did not intentionally or unintentionally supplant the FCC's access charge regime.

As further evidence of Congress's intent, the Conferees drafted § 251(i) to provide that "nothing in this § [251] shall be construed to limit or otherwise affect the FCC's authority under § 201." The FCC, of course, has traditionally regulated access charges under the § 201 mandate that rates be "just and reasonable." Indeed, the Conferees rejected the House approach to interconnection by new entrants, which would have added new duties to § 201. Instead, the Conference Report (at 121) states that § 251 has established "a new model for interconnection." The preservation of the FCC's traditional authority under § 201. combined with the characterization of § 251 as providing a "new model," further confirms that the access charge regime is not affected by § 251.

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[111] Conf. Rpt. at 117 (1996) (emphasis added).

[112] S. Rep. No. 23, 104th Cong., 2nd Sess. 22 (1996).

C. Applying Sections 251 And 252 To Interstate Access Charges Would Improperly Cede Jurisdiction Over Such Charges To Private Parties And The States.

The *NPRM* properly recognizes that allowing IXCs cost-based, unbundled access to ILEC network elements might represent a "fundamental jurisdictional shift" by allowing state commissions to administer interstate access charges (¶ 164). It would be inconsistent with well-established jurisdictional boundaries for states to be granted jurisdiction over the fundamentally federal subject matter of interstate communications.

The language and structure of the 1996 Act establish that the terms and conditions of interconnection under §§ 251 and 252 are to be resolved primarily via private negotiations, subject to assistance and oversight by the states. Under those provisions, if the parties fail to come to an agreement, the state PUC is to arbitrate the parties' differences, including price terms. Reading §§ 251 and 252 as applicable to LEC-IXC interconnection would necessarily mean that the LEC-IXC relationship is also subject to state oversight. Yet, interstate communications in general, and interstate access charges in particular, have always fallen within the FCC's regulatory authority under § 2(a) of the Communications Act. Congress would not have worked such a dramatic jurisdictional shift without saying so explicitly.

D. Allowing IXCs Cost-Based Access To Unbundled Network Elements Represents A Prohibited Indirect Avoidance Of Access Charges.

The FCC acknowledges that "allowing interexchange carriers to circumvent Part 69 access charges by subscribing under § 251(c)(3) to network elements solely for the purpose of obtaining exchange access may be viewed as inconsistent with . . . § 251(g), and contrary to Congress' focus in these sections on promoting local competition" (¶ 164). The FCC is correct; IXCs cannot be permitted to do indirectly

what they are plainly prohibited from doing directly.[113] Accordingly, the FCC should reject the position that § 251(c)(3) -- which gives "any requesting telecommunications carrier nondiscriminatory access to network elements on an unbundled basis" -- enables IXCs to piece together access arrangements for their use when acting as IXCs rather than CLECs. Unbundled network elements are only available to entities that are eligible to obtain interconnection under 251(c)(2); such interconnection is available solely for "the transmission of telephone exchange service and exchange access service." IXCs could, of course, obtain unbundled network elements for the purpose of providing exchange service to end users -- that is, when they act as CLECs. In that case, however, the FCC should require that CLECs impose the same charges on affiliated IXCs that they impose on unaffiliated IXCs for providing origination and termination of toll services.[114]

VI. OTHER MATTERS.

A. Exemptions for Rural Telephone Companies.[115]

Section 251(f) of the 1996 Act sets out a number of mechanisms under which rural telephone companies and LECs with fewer than two percent of aggregate nationwide lines may be exempted from application of various interconnection-related requirements. To this end, the statute contains explicit standards for state commissions

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[113] *See Stadia Oil and Uranium Co. v. Wheelis*, 251 F.2d 269, 275 (10th Cir. 1957); *Fentron Industries Inc. v. National Shopmen Pension Fund*, 674 F.2d 1300, 1306 (9th Cir. 1982).

[114] CLECs, of course, are subject to the § 202(a) requirement not to engage in unreasonable discrimination.

[115] This section of GTE's Comments responds to Part II.F of the *NPRM*.

to apply in evaluating requests for interconnection and petitions for exemption or modification, as well as time limits for action on such matters. Given these detailed statutory provisions, the FCC's tentative conclusion that states alone possess the authority to make the exemption determination under § 251(f) is demonstrably correct, and the FCC's further question whether it should establish national standards to assist the states in such determinations must be answered in the negative.

B. Advanced Telecommunications Capabilities.[116]

The FCC correctly notes that promotion of the deployment of advanced telecommunications capabilities is currently at issue in CC Docket No. 96-45 (¶ 263). In that proceeding, GTE has apprised the FCC of its views on this issue and would reiterate here only that the agency should ensure that any interconnection rules it adopts do not unreasonably constrain the efforts of carriers and the workings of the competitive market. Such private initiatives are the most efficient and effective means of ensuring the deployment of advanced telecommunications capabilities throughout the Nation.

C. Provisions of Section 252.

1. FCC Arbitration.[117]

The FCC seeks comment on its role in the interconnection negotiation process where a state commission "fails to act to carry out its responsibility" to facilitate negotiations or to pass upon agreements under § 252. Specifically, the FCC requests

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[116] This section of GTE's Comments responds to Part II.H of the *NPRM*.

[117] This section of GTE's Comments responds to Part III.A of the *NPRM*.

input on the meaning of the "fails to act" trigger for its involvement, and the procedures it should follow when a failure occurs. It also asks whether an interconnection agreement that is "deemed approved" under § 252(e)(4) by the passage of time without an affirmative state decision constitutes a failure to act. (¶¶ 264-266)

The FCC does not need to pursue these issues at this time because there is no indication that states will fail to act as required under the legislation. Given the tremendous burden on FCC resources generated by the 1996 Act, the agency's attention should not be deflected from more pressing matters by such speculative inquiries. There will be sufficient opportunity to deal with the FCC's concerns at a later date in the unlikely event they are realized.

If the FCC nonetheless decides to address these issues here, it should recognize that it may take over the state's responsibility only where a state agency has failed to carry out its assigned role (§ 252(e)(5)). It follows that an agreement that is deemed approved by the passage of time after submission to the state cannot constitute a failure to act, because there remains no uncompleted state role for the FCC to assume. Rather, the statute expressly provides that the exclusive remedy for any party aggrieved by the approval of an interconnection agreement lies in the appropriate Federal District Court. (§ 252(e)(6)). Any interpretation that would permit the FCC to assume jurisdiction over such automatically approved agreements would render § 252(e)(4) nugatory, contrary to well established principles of statutory construction.[118]

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[118] *See National Cable Television Ass'n v. FCC*, 33 F.3d 66, 74 (D.C. Cir. 1994); *Association of Civilian Technicians v. Federal Labor Relations Authority*, 22 F.3d 1150, 1155 (D.C. Cir. 1974).

2. Availability of Approved Agreements.[119]

The FCC seeks comment on the meaning of § 252(i), which provides that an ILEC must "make available any interconnection, service, or network element provided under an agreement approved under this section to which it is party to any other requesting telecommunications carrier upon the same terms and conditions as those provided in the agreement." The agency asks whether it should adopt national standards to guide application of this requirement to disputes, whether the requirement may be limited to similarly situated carriers, whether parties may subscribe to piece parts or only an entire agreement, and over what time period an agreement must remain available to others (¶¶ 269-272). Common sense application of the other requirements of the statute, existing FCC policies, and future state interpretations will offer substantial guidance on the questions raised.

Initially, GTE agrees that approved interconnection agreements should be available only to "similarly situated" carriers. As shown above, such agreements address, and should be available to, only those carriers proposing to offer competitive exchange and exchange access services within an ILEC's service area. It further stands to reason that only those carriers that (1) can utilize a particular interconnection arrangement as a technical matter, (2) have similar costs (compared to the initial party interconnecting under the agreement) of interconnecting with and providing transport and termination to the ILEC, and cause (3) the ILEC to incur similar costs in providing interconnection and transport and termination can claim service under an existing

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[119] This section of GTE's Comments responds to Part III.B of the *NPRM*.

agreement. Providing service under the agreement to carriers that are not similarly situated in these respects would violate the 1996 Act's requirements that interconnection be technically feasible and offered at cost-based rates.

In addition, § 252(i) clearly requires that any party taking service under an existing agreement do so under the "same terms and conditions" as the original party. As the FCC properly notes, agreements arrived at by negotiation typically involve concessions affecting numerous inter-dependent terms. (¶ 271) Thus, in general, parties should not be allowed to "cherry pick" particular individual provisions of such agreements, just as AT&T does not permit parties to piece apart Tariff 12 and Contract Tariff offerings. To the extent the legislative history referenced by the FCC may be read otherwise, it is a cardinal legal principle that such statements may not be used to contradict the plain meaning of the statutory language.[120]

Finally, GTE believes that some reasonable period should be established for availability of agreements to third parties, just as in the case of Tariff 12 and Contract Tariff agreements. Networks, technologies, and costs change over time in ways that may not have been fully anticipated by the original parties to an agreement. It would not serve the public interest if ILECs were obligated to implement older agreements predicated on circumstances that may have changed markedly in the intervening period.

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[120] *See, e.g. United Air Lines v. CAB*, 569 F.2d 640, 647 (D.C. Cir. 1977).

VII. CONCLUSION

The FCC should not adopt detailed national rules for implementing §251 of the new Act. Instead, it should identify acceptable but not mandatory outcomes, as discussed above.

Respectfully submitted,

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Attachment 1
Unbundling Loops Into Feeder and Distribution Services

Summary

In a limited number of instances that must be determined on a case-by-case basis, it may be feasible to provide the "feeder" segment of the local loop on a separate basis. However, the expense associated with making unbundled access to a feeder sub-loop element available likely will be high enough, in many cases, that denial of access would not "impair" the requesting party's ability to provide service because it could self-provision the element at a lower cost.

The "distribution" component cannot reasonably be provided on a stand-alone basis, because it would be totally severed from the ILEC network. The ILEC would have no idea of what services the new entrant would attempt to provide over the "distribution" component, whether such services would conflict with ILEC services of those provided by a third new entrant over ILEC "distribution," nor would the ILEC have any practical method to maintain or repair the facilities.

Loop Design

Local loops are engineered to meet the service needs of the specific local serving area. The main factors that drive loop design include the technology available at the time of construction, the size of the geographic area to be served, the distribution of demand for various types of services within that area, and capital constraints. The embedded local loop network has been constructed over a period of a century and reflects all of these factors -- most notably the technology availability factor. In GTE's network, the predominant loop design includes copper cable. GTE and other ILECs certainly embrace new technology and continually seek ways to make their facilities

more useful, *e.g.*, through technology trials of ADSL technology, but the embedded plant will continue to be used as long as it remains functional.

Some ILEC local networks may rely primarily on copper facilities.[1] Those copper facilities may be heavy gauge, or fine gauge cable coupled with electronic amplification equipment, such as Voice Frequency Repeaters and Loop Extension devices.[2] Depending upon the total length of the cable, loading coils (inductors) may or may not be present within the loop.[3] Other ILECs may deploy either analog or digital concentration (pair gain) devices over either copper or fiber links. Digital Loop Concentrator ("ADLC") systems may be either single-ended or double-ended.[4]

Feeder and Distribution

In GTE's network, there may or may not be a distinct physical point where a "feeder" loop section ends and a "distribution" segment begins. In many locations, particularly in mature service areas where there is little or no growth, the cable runs

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1 In GTE's network, about eighty percent of loops are provided over copper facilities.

2 Cables are available in a range of gauges, i.e., the diameter of the copper wires. These range from extremely thin, or fine, such as 28 gauge, to the thickest, or heaviest, 19 gauge. The thicker the gauge, the greater the distance that can be served, but the higher the cost. The loop design engineer must find the most economical alternative between: using a heavy gauge cable that can serve more distant locations; using a finer gauge with electronic amplification devices; or some combination of pair gain or concentration electronic device and conventional cable for the final distribution link.

3 Generally, loading coils are necessary if the total loop length exceeds 12,000 feet.

4 A single-ended DLC is capable of a direct input to the switch at the DS-1 level. With the exception of the very newest of these devices, the DLC must be provided by the manufacturer of the switch to which it will be connected because of the use of proprietary control and signaling protocols. A double-ended DLC has a Central Office Terminal ("COT") that is connected via a DS-1 link to a similar field terminal. The COT converts the DS-1 into individual DS0 channels for connection directly to switch line cards.

from the central office to the customer premises. In these cases, there is no feeder/distribution distinction in GTE's records, nor is there a clear-cut location where a new entrant could connect for purposes of using only a portion of a loop, absent additional construction to create such an interconnection point.

In locations where a significant amount of new growth occurs, GTE's normal practice is to install a passive physical device known as a cross-connect box at the point in a "feeder" route where the "distribution" cables branch from the feeder route.[5] The feeder cable into the cross-connect box could be either the end of a copper feeder cable, or a small section of cable fed by a DLC located nearby.[6] All distribution cables serving a defined geographic area would be served from a single cross-box.[7]

A cross-connect contains punch-down strips for incoming feeder and corresponding punch-down strips for outgoing distribution. To provide service to a new customer, a technician places a wire "jumper" between a terminal on the feeder and a terminal on the distribution punch-down strip. Such jumpers are normally left in place

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[5] GTE does not keep accounting records with a "feeder" or "distribution" classification for either investment or expenses, nor is there any such distinction within Part 32 of the Commission's rules.

[6] GTE follows the normal industry practice of using a separate cross-connect box to connect the output of a DLC to distribution cable, rather than attempting such connection within the enclosure that houses the DLC.

[7] Cross-connect boxes are normally placed within public right of way, and may be either mounted at ground level or on a pole. Cross-boxes have a capacity expressed in the total number of lines that can be installed, and are available in a variety of sizes. For example, a 1200 line box can accommodate any combination of incoming feeder and outgoing distribution totaling 1200 lines. The punch-downs assigned to distribution normally exceed those for feeder, due to the existence of vacant residence/business units at any point in time, and the use of multiple services at a single location.

when a dwelling becomes vacant so that a new resident can be provided service without the need for a technician to visit the cross-connect box.

In GTE's network, there is normally a mixture of cross-connected and non-cross connected loops within a single central office serving area. This is the case because while the cross-connect configuration offers advantages in high activity (installations and disconnections) or high growth areas, unless new growth in an older area requires significant reinforcement of the feeder facilities, and/or the cost of revising an existing network into the feeder/distribution configuration are less than such reinforcement, GTE does not rework the entire area to install a cross-connected feeder/distribution configuration.

Sub-loop Unbundling to Provide Distribution Service is Not Feasible

While providing distribution loop service in locations where an existing cross-connect box serves as a demarcation between feeder and distribution is seemingly a straightforward matter, it is not technically feasible. The ILEC would not have any knowledge of whether the intended use could be supported by the "distribution," or whether the intended use would conflict with either ILEC services or services provided by a different new entrant. For example, if an analog pair gain device is in use in a cable, then some digital transmission services, such as ISDN, cannot be provided in that same cable sheath. Or, it may not be possible to use a loop or sub-loop for high capacity services because the physical separation between cable pairs within the cable sheath may be too little, the cable gauge too small, or loading coils may be present.

Moreover, if the "distribution" segment of a cross-connected loop were made available as a separate service, the ILEC would have no connection to the severed "distribution" segment to provide maintenance monitoring or repair testing. In most

GTE central offices, it is possible to test an entire loop from a distant location; that capability would be lost with a disconnected distribution service.

Sub-loop Unbundling to Provide Voice Grade Feeder Service Over Copper Facilities

The provision of "feeder" service to a new entrant could be accomplished if the overall transmission performance remains within acceptable parameters. From the perspective of the ILEC, it would be little different than providing a loop service to any other customer except that the "end user," the new entrant, could have a much greater amount of plant connected to the "feeder" than the typical amount of inside wire. Because copper loops are designed based upon a maximum distance to be served, the new entrant's distribution length and cable gauge would have to be in harmony with the overall original design parameters used by the ILEC for the "feeder." Thus, part of the order-taking process would be a determination of whether the ILEC copper "feeder" could be useful to the new entrant. This determination would involve a coordinated effort to compare the new entrant's detailed engineering information concerning the length and gauge of its distribution with the ILEC's feeder design to determine if the "feeder" could be useful to the new entrant, or if additional investments in loop amplification equipment would be necessary.

There are a number of additional costs that will be incurred by both the new entrant and GTE that would not be needed when providing a total loop service to a new entrant. There are also other costs associated with providing "feeder" loop service to a new entrant that are not needed when GTE furnishes the loop component of a service provided to end user customers.

To obtain access to "feeder" facilities at a cross-connect box, a new entrant would need to provide a cable "tail" that could be inserted into the GTE cross-box and

terminated on new punch-down strips by a GTE technician. At least one such punch-down strip would be needed for each new entrant that desired "feeder" service from GTE at that particular point.[8] Further, each time that a new entrant purchased "feeder" service from GTE, a GTE technician would need to be present to place a new jumper.

Sub-loop Unbundling to Provide Voice Grade Feeder Service Over Digital Loop Concentrators

It is far more complicated and costly to provide feeder "transport" (for use by a new entrant's distribution) to a collocation point in the ILEC central office when a DLC is involved.[9] There are dozens of different types of such devices currently in use throughout the nation. About a quarter of DLCs in place in GTE's network today are double-ended, meaning that they must have matching electronic components in place in the central office and in the field (normally at the end of the "feeder"). Three quarters of the DLCs in GTE's network are single-ended, meaning that they can interface directly with the trunk side of the central office switch at the DS-1 level. Moreover, except for the most recent single-ended DLCs, both the field component and the central office

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[8] This simplistic example assumes that the existing cross-connect box has the capacity to hold such additional punch-down strips, and that installation of punch-down strips dedicated to new entrants would not cause GTE to replace the cross-box with one of greater capacity. Replacing a cross-connect is a very labor-intensive effort because every incoming and outgoing cable pair must be "bridge" or "tee" spliced to maintain existing service while the new box is installed and jumpers run to replicate all existing jumpers in the original box. Once this activity is completed, the original cable tails are cut and capped, and the original box removed.

[9] A DLC normally uses 24 or 48 channels to link the device to the 96 channels of capacity. Thus, there is a concentration ratio of either 4-to-1 or 2-to-1.

component and/or switch, must be the same manufacturer due to the use of proprietary signaling between those units.[10]

Connecting the distribution plant of a new entrant to the field end of a DLC (for purposes of obtaining feeder "transport" to the ILEC central office) would be relatively straightforward. A cross-connection, as described *supra*, would be involved, and the costs of the additional punch down strips or of replacing a cross-box to a higher capacity unit would be the same. The travel time and work at the cross-box by a GTE technician would also be the same.

However, at the central office, the situation can be more complicated, depending upon the brand and vintage of DLC, and on the nature of the service to be provided (*e.g.*, voice grade, ISDN, or private line service). If a double-ended DLC is in use, and the new entrant wants voice grade capability under the same concentration ratio that GTE provides to its customers, there may be little effort required at the central office.[11] In this case, GTE would already have each channel available at the DS0 level in the central office. Connecting the new entrant customer's feeder to the new entrant's collocation arrangement in the GTE central office would be a straightforward matter from a technical perspective.[12]

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[10] There is a new DLC design meeting a standard (TR-303) that allows different brands of field and central office switching equipment to be used. *See* RM-8614, Petition for Rulemaking of MFS Communications, March 7, 1995, at 39-41.

[11] See Drawing 1. (Drawings 1, 2 and 3 are not available in the electronic version of this filing.)

[12] There is an additional cost that could occur. Depending on the type of concentration equipment used by the new entrant, GTE's COT output may not match the impedance needed by the new entrant's concentration equipment. Either GTE would need to use a different, and more expensive, line card in the COT, or the new entrant would need to match to GTE's normal output.

If the new entrant wants a voice grade service that is not concentrated by the GTE double-ended DLC, there are additional costs involved. In this case, GTE could not use the DLC, but would have to use an "overlay" digital transmission method that would include channel banks (multiplexers) in both the field and the central office.[13] This overlay facility may be in place to provide GTE customers with dedicated private line service, or may have to be constructed in response to the new entrant request (if the new entrant is willing to pay).

If the DLC is a single-ended, or direct interface DLC, the situation is far more complicated. For older single-ended DLCs, there is only one viable provisioning method that can be used either for the case when the new entrant wants the same concentration ratio used for GTE's own customers, or when a non-concentrated loop is desired.[14] This method uses a separate, or "overlay," digital transmission medium between the field terminal location and the central office.[15] This overlay facility may be in place to provide GTE customers with dedicated private line service, or may have to be constructed in response to the new entrant request.

An overlay transmission medium is not needed with newer single-ended DLCs. These machines have the capability to use a line card that is different and more

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[13] See Drawing 2. GTE uses this separate "overlay" method to provide non-switched private line services in locations where DLCs are used as the feeder medium.

[14] One alternative is to continue to use the DLC's direct switch input, but to "nail," or hard-wire a connection through the switch to the trunk side, and then connect that trunk port directly to the interconnector's concentration equipment. This alternative is horribly inefficient, would quickly consume a significant portion of switching capacity, and would add the cost of such switching capacity and a trunk port to the pricing equation. Another alternative is to add a COT, and cause GTE to forgo the efficiencies available from the single-ended DLC, *i.e.*, no COT and no requirement for switch line cards, for all of the GTE customers served by the DLC.